

AUTOMATIC VEHICLE ACCIDENT RECOGNITION AND MESSAGING SYSTEM BY USE OF GSM AND GPS MODEM

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ABSTRACT

The objective of an project to develop the vehicle security to using MEMS (Micro Electro Mechanical System) sensors, GPS and GSM technology to connect mobile and we have include a camera in vehicle. So we use the sensor has connected to the camera they monitoring the every action of the driver if the driver go to an drowsiness stage the sensor provide a some warning sound to a driver we denote some speed limitation in sensor, if the driver across the speed limitation the sensor automatically provide alarm and the sensor has connected to a horn if the vehicle have to provide a noise the sensor will automatically control the sound range if the driver fix at any range. Sometime the front vehicle has suddenly reduced the speed or applied the break if the accident is possible. So we use warning system to indicate a diver with some alert message along the front vehicle reach 4meter distance so the driver easily reduce the this kind of accident. We include GSM MODEM has to location to the police manage room or rescue team. So the police or rescue team to trace the vehicle location using GPS MODEM after receiving data. If driver go to high speed in the road they have some message pass to an device and the sensor automatically alert the driver. The driver does not respond the alert sound the GSM MODEM has pass the data to the police control room, rescue team they have take a proper action. In this project we have reduce accident and noise problem.

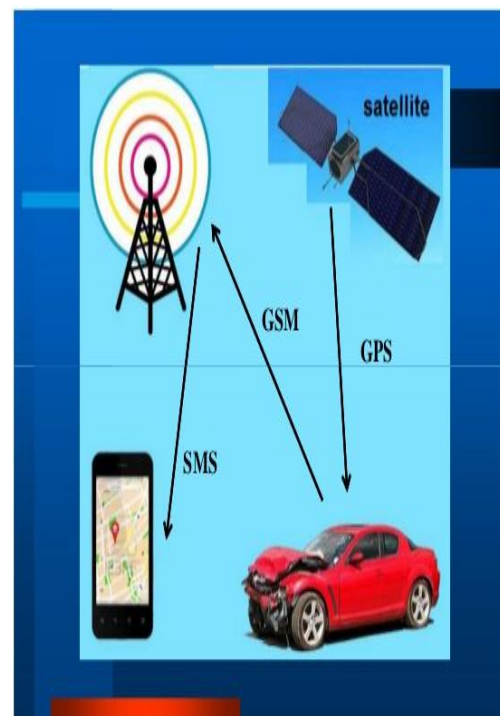
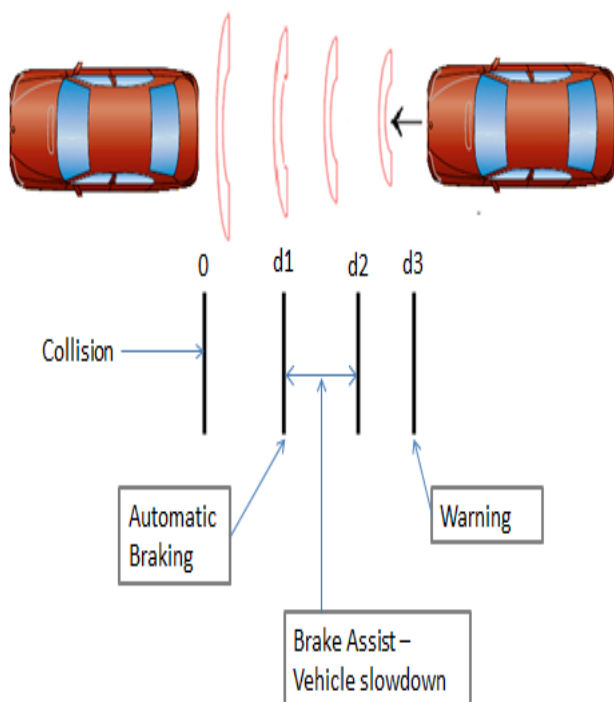
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INTRODUCTION

The high demand of cars has conjointly increased the traffic hazards and therefore the road accidents. Lifetime of the individuals is below high risk. This can be due to the dearth of best emergency facilities out there in our country.

An automatic alarm device for vehicle accidents is introduced during this paper. This style could be a system which might find accidents in considerably less time and sends the essential data to attention centre inside a couple of seconds covering geographical coordinates, the time and angle within which a vehicle accident had occurred.

- This alert message is distributed to the rescue team during a short time, which is able to facilitate in saving the dear lives.
- A Switch is additionally provided so as to terminate the causing of a message in rare case wherever there's no casualty, this will save the valuable time of the medical rescue team.
- Once the accident happens the alert message is distributed mechanically to the rescue team and to the police headquarters.
- The message is distributed through the GSM module and therefore the location of the accident is detected with the assistance of the GPS module.
- The accident is detected exactly with the assistance of each small electro system (MEMS) device and vibration device.
- The Angle of the rolls over of the automobile also can be noted by the message through the MEMS device.



1.1 Literature Survey

At present criteria, we cannot detect where the accident has occurred and hence no information related to it, leading to the death of an individual. The research work is going on for tracking the Location of the vehicle even in dark clumsy areas where there is no network for receiving the signals.

In this project GPS is employed for following the position of the vehicle, GSM is employed for causing the message and also the ARM controller is employed for saving the mobile range within the EEPROM associate decreed sends the message to that once an accident has been detected. Thence with this project implementation we are able to find the position of the vehicle wherever the accident has occurred in order that we are able to give the primary aid as early as potential.

Now-a-days many accidents happen on highways owing to increase in traffic and additionally owing to rash driving of the drivers.

And in several things the relations or the automobile and police authority isn't wise to in time. This lead to delaying the assistance reached to the person suffered owing to associate degree accident. Our project Vehicle Detection with GPS and GSM electronic equipment is intended to avoid such situations GUNNAR HENIE (2013).

1.2 Existing System

In the existing system they are used GPS and GSM Modem with the eye blink sensor. Eye blink sensors they have only detect the eye moment action. If the driver go to the sleeping stage the sensor will be produce the alarm sound to alert the driver. If the only monitoring the eye action to the driver and it will only provide the alarm sound it will never record the action and it only inform the driver. It has never use for further investigation to an accident.

1.3 Proposed System

In this project we use MEMS (Micro Electro Mechanical device Sensor). It has to be used to monitor the every action to a driver with the use of physical action MEMS sensor has very small ,so it has easily fit at everywhere for exe fit the sensor at stay ring it will detect the driver action through the physical action.

So we easily identify the mistake and sensor alarm has detected by driver. In this sensor has using to easily identify the case of accident. It has reduce more highway accident during this sensor.

METHODOLOGY

An electricity detector can 1st sense the prevalence of associate accident and provides its output to the microcontroller.

The GPS detects the latitude and longitudinal position of a vehicle. The latitudes and meridian position of the vehicle is distributed as message through the GSM.

The signal is pre-saved within the EEPROM. Whenever associate accident has occurred the position is detected and a message has been sent to the pre-saved range.

2.1 GSM – Global System for Mobile Communication

GSM is employed as a media that is employed to regulate and monitor the electrical device load from anyplace by causing a message.

It has its own settled character. Thereby, here GSM is employed to observe and management the DC motor, Stepper motor, Temperature detector and Solid State Relay by

causing a message through GSM electronic equipment. therefore no ought to waste time by manual operation and transportation.

Hence it's thought of as extremely economical communication through the mobile which can be helpful in industrial controls, cars, and appliances which might be controlled from anyplace else. it's additionally extremely economic and fewer expensive; therefore GSM is most well-liked most for this mode of dominant.

2.2 GPS – World Positioning System

GPS is employed in vehicles for each pursuit and navigation. Tracking systems modify a base station to stay track of the vehicles while not the intervention of the motive force wherever, as navigation system helps the motive force to achieve the destination. whether or not navigation system or pursuit system, the design is additional or less similar.

Once associate accident occurred in anywhere then GPS system tracks the position of the vehicle and sends the data to the actual person through GSM by alerting the person through SMS or by a decision.

HARDWARE DESCRIPTION

3.1 ARM7 TDMI

The ARM7TDMI-S could be a general purpose 32-bit micro chip, that offers high performance and really low power consumption. The ARM design is predicated on Reduced Instruction Set laptop (RISC) principles, and also the instruction set and connected decipher mechanism square measure a lot of easier than those of small programmed complicated Instruction Set Computers (CISC).

This simplicity leads to a high instruction output and spectacular period of time interrupt response from alittle and cost-efficient processor core. Pipeline techniques square measure utilized in order that all elements of the process and memory systems will operate unendingly. Typically, whereas one instruction is being dead, it successor is being decoded and a 3rd instruction is being fetched from memory.

The ARM7TDMI-S processor conjointly employs a singular branch of knowledge strategy referred to as Thumb, that makes it ideally suited to high-volume applications with memory restrictions or applications wherever code density is a problem. The key plan behind Thumb is that of a super-reduced instruction set.

3.2 Sensor

A electricity sensing element is employed as accident detection sensing element.

A electricity electrical device has terribly high DC output electric resistance and may be shapely as a proportional voltage supply and filter network. The voltage V at the supply is directly proportional to the applied force, pressure, or strain. The signal is then associated with this mechanical force as if it had suffered the equivalent circuit.

3.3 MAX 232

The goop232 could be a twin driver/receiver that has a electrical phenomenon voltage generator offer|to provide|to produce} TIA/EIA-232-F voltage levels from one 5-V supply. every receiver converts TIA/EIA-232-F inputs to 5-V TTL/CMOS levels. These

receivers have a typical threshold of one.3 V, a typical physical phenomenon of zero.5 V, and may settle for ± 30 -V inputs. every driver converts TTL/CMOS input levels into TIA/EIA-232-F levels.

3.4 EEPROM

EEPROM is employed during this project. This EEPROM stores the mobile numbers entered by the user for receiving accident alert SMS. the info keep within the EEPROM can retain even the ability is off for lasting five. sixteenX2 liquid crystal {display| LCD| digital display| alphanumeric display}; 16 X a pair of LCD is employed to display the manual and standing of the output.

3.5 HD44780U

HD44780U is employed within the project. The HD44780U dot-matrix liquid show controller and driver LSI displays alphameric, Japanese kana characters, and symbols. It is designed to drive a dot-matrix liquid show underneath the management of a 4- or 8-bit micro chip. Since all the functions like show RAM, character generator, and liquid driver, needed for driving a dot-matrix liquid show square measure internally provided on one chip, a nominal system is interfaced with this controller/driver.

A single HD44780U will show up to at least one 8-character line or 2 8-character lines. The HD44780U has pin perform compatibility with the HD44780S that permits the user to simply replace associate LCD-II with associate HD44780U. The HD44780U character generator storage is extended to get 208 5X8 dot character fonts and 325X10 dot character fonts for a complete of various character fonts.

3.6 Contrast Control

It is a simple variable resistor (preset) with linear characteristics. This is used to adjust the contrast of the display.

3.7 Reset

Reset control circuit is used to reset the microcontroller at any stage of work.

ADVANTAGES

- Easy to operate.
- Sophisticated security.
- Simple and Reliable Design.
- Isolates both GSM and GPS signal.

LIMITATIONS

- It does not work without network. If the driver changes the mobile number,
- It very difficult.

APPLICATIONS

Stolen Vehicle Recovery: each client and business vehicles is outfitted with RF or GPS units to permit police to try to following and recovery.

Fleet Management: once organization a task force of vehicles, knowing the period location of all drivers permits management to fulfil client wants a lot of with efficiency. whether or not it's delivery, service or alternative multi-vehicle enterprises, drivers currently solely would like a portable with telecommunication or net association to be inexpensively tracked by and sent with efficiency.

CONCLUSION

This paper presents vehicle accident recognition and alert system with SMS to the user outlined mobile numbers.

The GPS pursuit and GSM alert based mostly rule is meant and enforced with LPC2148 MCU in embedded system domain. The projected Vehicle accident detection system will track geographical data mechanically associate decreed sends an alert SMS concerning accident. Experimental work has been disbursed fastidiously. The result shows that higher sensitivity and accuracy is so achieved mistreatment this project.

EEPROM is interfaced to store the mobile numbers for good. This created the project additional easy and reliable. The projected methodology is verified to be extremely useful for the automotive business.

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